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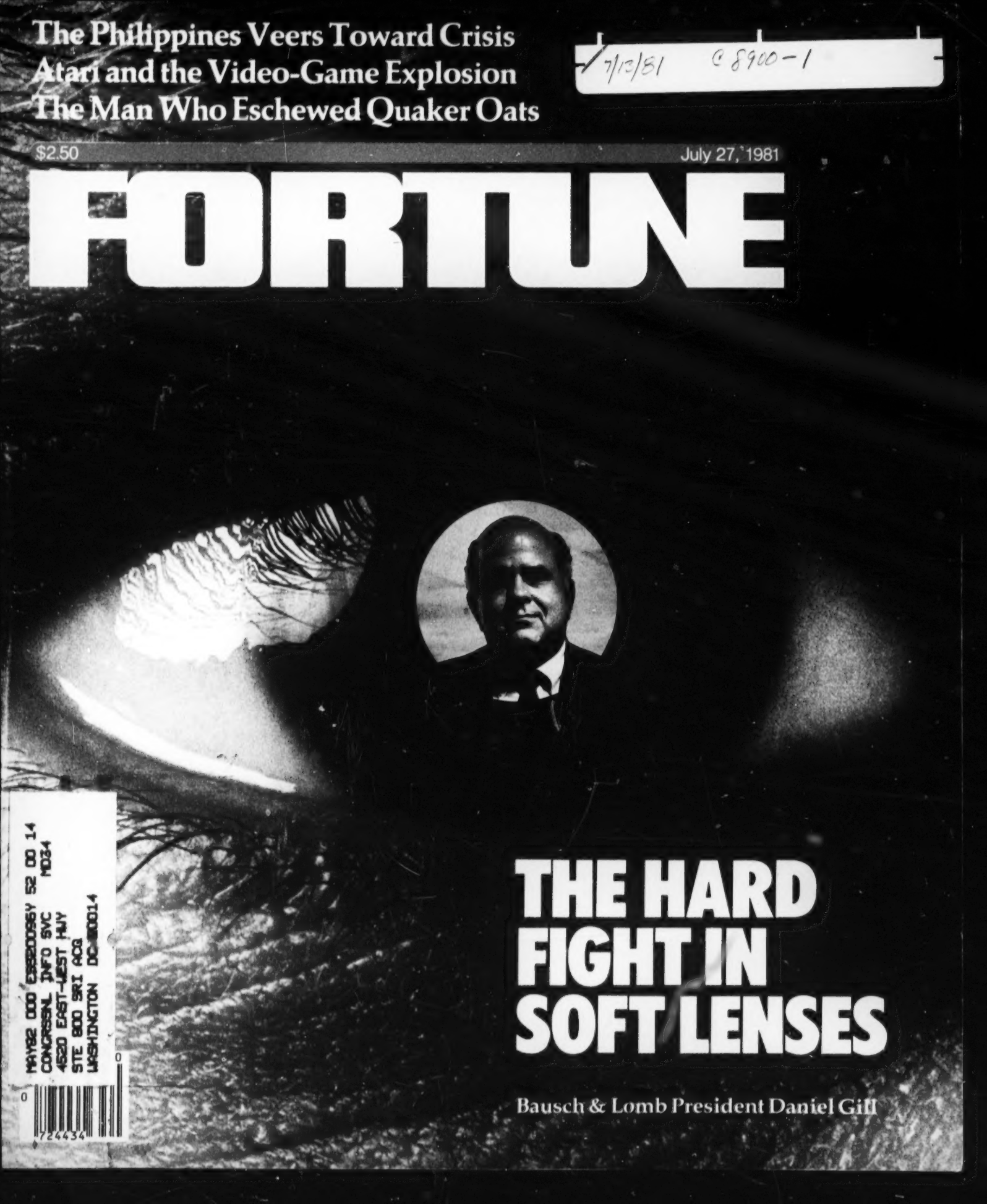

THE HARD FIGHT IN SOFT LENSES

Bausch & Lomb President Daniel Gill

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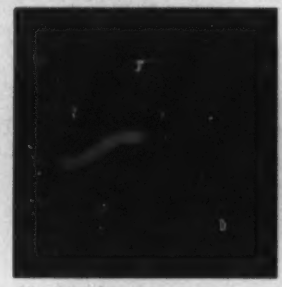
John Marmaras's portrait of Daniel Gill, chief executive of Bausch & Lomb, is set in a photograph of the human eye by Ric Cohn. A story on the increasingly competitive contact-lens business begins on page 56.



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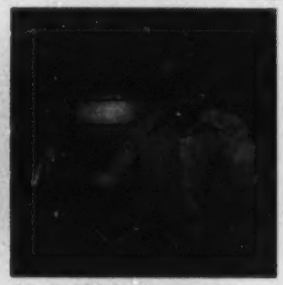

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At 54 Ken Mason was president of Quaker Oats and headed for the top. Three years later he quit and moved to the north woods "to reflect."

GROWTH INDUSTRIES

Atari and the Video-Game Explosion

As millions turn into bug-eyed, button-pushing fanatics, profits skyrocket at the Warner Communications subsidiary that ignited the craze.

by PETER W. BERNSTEIN

In the beginning there was Pong, the electronic version of table tennis that sparked the creation of a new industry when it was introduced nine years ago. From the rudimentary origins of Pong—black and white, back and forth—video games have burgeoned into an incredibly varied, full-color phenomenon. They have taken over the arcades where pinball long reigned, and now are penetrating the sanctum of the home. By flicking a switch on a device that hooks up to any TV set, you can tune out *Dallas* and convert your screen into the battleground of Missile Command or Space Invaders.

Controversy swirls around these new contraptions. In Irvington, a New York City suburb on the banks of the Hudson, the village trustees recently debated a resolution that would prohibit the playing of coin-operated video games by anyone under 17. Parents complained that their children were cutting school and squandering their lunch money. Some believe that all the frantic knob twisting and button pressing may be hazardous to your health. *The New England Journal of Medicine* reported last May the appearance of "Space Invaders wrist," a malady caused by "minor ligamentous strain of the joint from repeated and prolonged playing." The cure: 1½ weeks of abstinence.

The psychological and sociological impact of the games may be more enduring, though not necessarily harmful. Sherry Turkle, an associate professor of sociology at MIT who has undertaken a study of all forms of "high-tech rec," observes that the games emphasize "power, macho, aggression, and manipulation." Says Turkle: "Preadolescent boys use them as a way of walling out sexual and peer pressures." The games are not all bad, Turkle believes: "Kids who master them gain confidence in their ability to master complex learning situations and overcome their fear of computers."

Research associate: Peter D. Petre

Up from near-bankruptcy

Video games have become the fastest-growing segment of the $4.3-billion-a-year toy business, at a time when the market for hand-held electronic games, such as Mattel's Football II, has softened. They are an absolute bonanza to Atari, the world's largest producer of video games and the originator of Pong. Among all the companies in this fast-growing business, only Atari manufactures both coin-operated games for arcades and a video-game player for the home. Though it seems incredible now, Atari nearly went bankrupt shortly after it was founded in 1972 by an eccentric young engineer, and it went through some more hair-raising times after it was bought by Warner Communications in 1976 for $28 million.

But last year Atari took off like a video-screen missile fired from a defending earth station at intergalactic aggressors. Revenues more than doubled, to about $415 million, while operating income quintupled, to $77 million (see chart on page 42). This year promises to be even better. Warner insiders expect revenues to top $900 million and operating profits to approach $200 million.

Atari's zoom comes at a time when Warner can use another big scorer. Its largest business—records and music publishing—has been stagnant since the record market collapsed three years ago. Without blockbusters, Warner's movie business suffered a decline in profits last year to the lowest level since 1977. The company's huge investment in cable television—it operates the country's fifth-largest system with its partner American Express—is not expected to start paying off until the mid-1980s.

But thanks to the mighty thrust of Atari, which accounted for one-third of operating income last year, Warner's overall numbers have kept climbing. Revenues hit $2 billion in 1980 and net income rose to $137.1 million—both about 25% higher than in 1979. The company's stock has turned in an even more dazzling performance, jumping 35% in six months.

Atari was founded by Nolan Bushnell, now 38, an egotistical but exceedingly charming man who is no longer with the

There's not a pinball game in sight at the Westworld arcade in Los Angeles, where video games have taken over. Atari assembles its coin-operated games, like Missile Command and Asteroids, in California and Ireland. Its fast-selling home video-game sets are mostly made in Taiwan and Hong Kong, their cartridges in Texas and Puerto Rico.

"The state of the company in the mid-1970s was absolute chaos."

company but has fathered another innovative business (see box on page 44). The son of a cement contractor, Bushnell was raised as a Mormon but has abandoned the faith. His interest in video games traces to his days as an engineering student at the University of Utah, when he spent his spare time playing games on a computer and worked in an amusement park during vacations. Bushnell was not the first to become intrigued with computer games; an MIT student wrote a program for a game called Spacewar in 1962. But nobody had succeeded in developing the idea commercially, and Bushnell's first game, Computer Space, developed in 1971 while he was working as a research engineer in California's Silicon Valley, bombed like all the others.

Bushnell persisted and developed Pong, whose simplicity marked a sharp break from the complexity of other computer games. He had already started a company with a friend and $500 in capital, and in 1972 decided to produce a coin-operated version. About this time he settled on Atari, a term from the Japanese game of go, as the name for his company. It's a polite warning to an opponent that he is about to be engulfed.

Pong revolutionized the coin-operated-games business, whose mainstay at the time was the pinball machine, for it could be played simultaneously by two people. Unfortunately, no sooner had Pong hit the market than dozens of competitors rushed in and snatched most of the business. By 1974 the industry had produced about 100,000 Ping-Pong video games, only a tenth of them made by Atari.

What little money Atari made, it quickly lost. It tried unsuccessfully to expand into Japan, losing about $500,000 in the process. It opened arcades in Hawaii, which turned out to be a drain on its resources. Even though the company dreamed up some imaginative new video games, it could not come up with another winner like Pong. Says Don Valentine, a venture capitalist with Capital Management Services of Menlo Park, California, and one of the early investors in Atari: "The state of the company in the mid-1970s was absolute chaos."

But it was fun. Top management and the engineers would repair to Pajaro Dunes, a vacation retreat on the California coast, for brainstorming sessions that would last two or three days. "It was like having a meeting at a fraternity house, with everybody trying to get their ideas on the board at the same time," recalls Gene Lipkin, a former president of the coin-operated-games division. Between sessions there would be plenty of marijuana and beer. In those days each promising new idea for a game was given a code name, almost always that of a female employee. Says Bushnell: "I remember Arlette the best. Boy, was she stacked and had the tiniest waist. I think she was Super-Pong."

Sears lends a hand

The company's perilous finances didn't stop Bushnell from charging into a big new market. After Pong's initial success it seemed logical to produce a home version that hooked up to a TV set. Magnavox had introduced the first home video game, called Odyssey, in 1972. A home version of Pong, introduced in the fall of 1975, was sold out before it reached the stores. Sears Roebuck & Co. had previously agreed to buy all that Atari could produce that year, about 100,000 games. To make sure it got delivery, Sears helped arrange financing for the company's inventories.

As the help from Sears suggests, Atari was too weak to push aggressively into home video games, then a highly seasonal operation in which the manufacturer was required to carry heavy inventory for most of the year. If Atari was going to continue to grow, it needed a way to raise cash quickly. The solutions were readily apparent: it could go public or sell out to a larger company. The latter course seemed to promise a much larger injection of funds, and the search for a buyer got under way. MCA and Disney took a look at Atari and passed, but Warner Communications jumped.

The deal would not have been made without the enthusiasm and tenacity of Emanuel Gerard. Now one of two men in Warner's office of the president, Gerard's role in the Atari tale has made him a

Figures Roaring into the Cosmos

Atari's takeoff came last year, when sales doubled and operating profits quintupled. The company itself publishes no figures; these numbers are estimates from Richard Simon, an analyst at Goldman Sachs. Simon's figures include Atari's revenues from personal computers—a money-losing line—as well as video games. Warner insiders say his 1981 estimates err on the low side.

John McDermott

Raymond E. Kassar (left), Atari's chief executive, helped engineer its triumph with the support of Emanuel Gerard (below), who's fond of Asteroids. Gerard oversees several of Warner's operations, including Atari and Franklin Mint, the company's latest acquisition.

Brownie Harris

strong future contender for the chief executive's job held by Steven Ross, 53. A self-styled "loudmouth and risk taker," Gerard, 48, won a reputation as the best entertainment-industry analyst on Wall Street before he joined Warner in 1974. Within six months he was named an executive vice president and was charged with overseeing relations with the financial community and looking for acquisitions. Atari was his first deal.

Gerard quickly made up his mind that he wanted the company. Nevertheless, structuring the deal took four months. The thorniest problem arose after a picture appeared in a California newspaper showing Bushnell, owner of just over half the stock, in a hot tub with a lady friend. Shortly afterward, Bushnell's first wife, from whom he was divorced, brought a lawsuit raising questions about whether he had clear title to his shares. Warner's lawyers intervened, and she settled for a small sum. After the deal went through, Bushnell, then 33, wound up with about $15 million in cash and debentures.

Chips to the rescue

Even with Warner's financial muscle, Atari's success was not assured. At their peak in late 1978, loans from Warner to Atari totaled $120 million, but money was not the main problem. By the end of 1977 consumers were becoming bored with so-called "dedicated" video games such as Pong, designed for only one type of action. It was only a matter of time before these games ended up stacked in the closet with the Monopoly board.

A technological innovation came along in the nick of time. Atari's engineers had developed a "programmable" game equipped with a semiconductor chip, called the Video Computer System. Currently priced at about $150, it works like a cassette tape recorder: to change the game one merely inserts a different game cartridge. Each cartridge sells for $25 to $35, and 43 are available.

Despite its versatility, the Video Computer System got off to a slow start. Atari introduced its new device in 1977, just as

NOLAN BUSHNELL'S NEW ACT: SINGING ROBOTS

Can Nolan Bushnell do it again? It's barely 2½ years since he was ousted from Atari, the video-game company he built from scratch. Now he thinks he has an even bigger winner in Pizza Time Theater, a zany combination of fast food and electronics. Since Pizza Time Theater Inc. went public in April at $15 a share, its stock has become one of the year's hot new issues. Bushnell owns just over half the stock, and at the recent market price of $25 his stake is worth about $48 million. Counting his interests in other fledgling enterprises and real estate, Bushnell, 38, figures he's worth about $70 million.

Each Pizza Time Theater is a self-service pizza parlor that doubles as a games arcade. The idea is that while people are waiting for their pizza, they will duck into the arcade and pop quarters into the machines. That combination alone is potent enough to draw crowds, but Bushnell has added a further ingredient: computerized entertainment by pneumatically powered robots.

Sing along with Dolli Dimples

These characters stand on a stage in the main dining area. Every eight minutes the lights dim and the robots come alive. The master of ceremonies is a rat named Chuck E. Cheese, who after a few bad jokes and some idle banter introduces some of his companions. Depending on the restaurant, these could include Madame Oink, a French pig who swoons and croons about Gay Paree; Harmony Howlette, a country-and-western coyote who sings like Loretta Lynn; or 13 others. A few minutes later, as tape-recorded applause breaks out from the rafters and mechanical flags flutter, the brief act is over. Nearby, in another dining room with a quieter atmosphere, Dolli Dimples, a piano-playing hippopotamus, sings oldies for 20-cent tokens.

Pizza Time started out as part of Atari. Bushnell wanted to expand into the game-arcade business but was convinced he needed an added draw. At an industry show in 1974, he picked up a costume for $800 and handed it to his engineers at Atari with the simple instruction that they make it sing and talk. "Live entertainers are expensive," Bushnell explained. "You don't have to pay robots." But two years later, when Chuck E. Cheese emerged from the lab, Atari had been sold. Warner allowed one Pizza Time Theater to open, but was never enthusiastic about the business. Bushnell bought the concept from Warner for $500,000 in 1978. "This is better than making games," he says.

Ever since, Bushnell has been trying to turn Pizza Time Theater into the next McDonald's, though he has a way to go. Sales reached $11.4 million in 1980, when the company achieved its first profit of $177,000, or 7 cents a share. The robots are packing them in at 44 Pizza Time Theaters in 12 states, about half of which are company-owned and the rest franchises. Bushnell expects to have 1,000 restaurants by 1985. Not long thereafter, he predicts with a straight face, Chuck E. Cheese will be better known than Mickey Mouse.

Nolan K. Bushnell shares a pizza with Chuck E. Cheese.

John McDermott

dealers were stocking up on dedicated games for the Christmas season. But neither product moved, and Atari faced considerable competition. Fairchild, Bally, and RCA had all introduced programmable home video-game machines, and during the next year nobody's systems caught on. Admits Gerard: "We built a lot of inventory in 1978 and we sold only a small fraction of it."

The chaotic market conditions mirrored the situation inside Atari. A conceptualist with a disdain for detail and a *bon vivant*, Bushnell never intended to oversee Atari's operations after the sale to Warner, even though he had stayed on in a top post. "I'm not a very good chief operating officer," he concedes. "I like to develop the strategy, not to work it." Soon after the company was sold, Bushnell began showing up only rarely for work.

Shouts at the budget meeting

Overseeing the daily chores was left to Joseph Keenan, now 39, an easygoing man who was then Atari's president. Admits Keenan, who himself has become a millionaire from the Warner deal: "After we sold the company we were significantly less motivated to bust our humps." Gerard pressured Keenan to hire people who could get the job done. "They really had no manufacturing, no sales, and no advertising or marketing expertise," Gerard huffs. "Everything but research was lacking. It was amateur night in Dixie."

Events were moving toward a showdown, which was precipitated by Bushnell. At the annual budget meeting in New York in 1978, he scathingly attacked the business. "I screamed and shouted a lot," he quietly says now. Bushnell's harshest words were reserved for the Video Computer System. He thought it was overpriced, and wanted Atari to unload its inventory at cut-rate prices.

Gerard countered that this was a time to press on, not to retrench. He figured that if Atari slashed the price of the home game system at this early stage, its future as a product would be destroyed. The argument got into personalities.

THE TOP VIDEO-GAME MAKERS

COMPANY	VIDEO-GAME SALES (1981 projections)	HOTTEST GAME	
Atari, Sunnyvale, California, a subsidiary of Warner Communications (home and coin-operated games).	**$710 million**	**Asteroids**	Spaceship blows up drifting asteroids ar battles flying saucers.
Midway Manufacturing, Franklin Park, Illinois, a subsidiary of Bally Manufacturing (coin-operated games).	**$220 million**	**Pac-Man**	Yellow creature gobbles dots while bein pursued through maze by monsters.
Mattel, Hawthorne, California (home games).	**$175 million**	**NFL Football**	Two eight-man teams battle on a video gridiron.
Williams Electronics, Chicago (coin-operated games).	**$125 million**	**Defender**	Spacecraft battles alien ships trying to abduct friendly planet's inhabitants.
Stern Electronics, Chicago (coin-operated games).	**$100 million**	**Scramble**	Spacecraft penetrates multiple defense systems and destroys enemy base.
Sega Enterprises, Los Angeles, a subsidiary of Gulf & Western (coin-operated games).	**$90 million**	**Astro Blaster**	Spaceship battles enemy squadrons; voi warns when its laser weapons overheat.

Video games have come up fast, and two of the leading U.S. producers were barely in the business a year ago. Williams Electronics, a maker of pinball machines, introduced its first video game only last November. Stern Electronics, a privately held company that makes jukeboxes as well as pinball machin the other newcomer. Midway Manufacturing helped sta video-game boom when its coin-operated Space Invade peared in 1978, but Pac-Man is now its most popular game.

Bushnell, according to a participant at the meeting, told Gerard he was "nuts." Gerard told Bushnell he could no longer expect "to rule Atari by the divine right of kings." One onlooker summed up the brouhaha: "I don't think anyone can yell louder than Manny Gerard."

Over lunch the day after the budget meeting, Bushnell and Keenan, then co-chief executive officers, agreed to a reorganization plan that Gerard had proposed several weeks earlier. Bushnell would give up the chairmanship and stay on as a director and Keenan would move up to chairman. The new chief executive would be Raymond Kassar, now 53, who had joined the company 11 months earlier. Bushnell began to waver when he got back to California. Learning that Bushnell was about to renege, Gerard called an emergency meeting of the executive committee of Warner's board, which ousted Bushnell. "King Pong," as he has been called in the press, was dethroned.

Brooklyn-born of Middle Eastern descent, Kassar is a meticulous man with a passion for discipline—the polar opposite of Bushnell. When he came to Atari, he knew nothing about the video-game business. For 25 years he had worked at Burlington Industries, rising to executive vice president and gaining a reputation as a turnaround artist. Passed over for the presidency in 1974, Kassar went into business for himself, importing cotton apparel from Egypt. But he confesses, "I missed the corporate world." Even so, he hesitated when offered a job at Atari running the division that produced home video games: "I was almost indignant. I had an $800-million responsibility at Burlington." Nevertheless, he signed on. To help gain an understanding of electronics, he read an article in *Scientific American,* which he then kept in his desk for easy reference.

Ties instead of T-shirts

Kassar set about changing Atari. "I knew I had a consumer-marketing company and I had nobody who understood the consumer business," he says. He brought in new people experienced at working in large organizations. He also established formal reporting procedures and financial controls, set specific sales and marketing goals, and tightene curity measures to protect confidenti formation. Kassar put his stamp o corporate culture as well. "Things kind of casual here," he recalls. "F didn't work very hard." He made it that he expected people to be at w 8 A.M. sharp, to answer the p promptly, and to wear ties and jacke stead of T-shirts.

Kassar generated considerable re ment. "Ray is very structure-oriente very elitist," says former Atari exec Gene Lipkin. "If he didn't like wha looked like, he wouldn't talk to yo time, most of the key executives the Bushnell regime left. Kassar als tagonized some engineers who had treated royally under Bushneli. A newspaper story quoted Kassar co ing engineers to operatic divas, T- emblazoned with the words "I'm ju other high-strung prima donna Atari" became popular in the comp research labs.

Kassar's discipline got results. than 100,000 unsold Video Compute tems jammed Atari's warehouses

Like razor blades, cartridges are more profitable than the devices they click into.

he took over, but 1979 was a total sell-out. Last year retailers snapped up all the home game players Atari could produce. This year the company is rationing its product; analysts estimate it will sell about 2.8 million game players and 18 million cartridges.

Atari's takeoff owes as much to Kassar's marketing talents as his organizational skills. After the delivery problems of 1977, Kassar knew that it was crucial that retailers sell whatever they had on their shelves in 1978. During the last seven weeks of the year he launched a $6-million advertising campaign, a tactic that Atari had resisted until then. At the Consumer Electronics Show the following January, retailers were clamoring for more product. But Kassar's biggest coup came a year later. The home game player had been perceived as a Christmas item, but Kassar was convinced it could be turned into a year-round product. To prove his point, Atari introduced four new game cartridges in late January. Says Michael Moone, the 35-year-old president of the consumer division: "It started a run on the business."

The first blockbuster

One of the fastest-selling cartridges is Space Invaders, an adaptation of the popular coin-operated game designed by the Japanese company Taito and manufactured in the U.S. by Bally's Midway subsidiary. Over one million have been sold. A blockbuster of that magnitude is significant because, like razor blades, cartridges are more profitable than the devices they click into. One analyst, Richard Simon of Goldman Sachs, estimates that Atari's operating margins on its cartridges are more than 50%. No wonder Atari has been introducing new ones almost monthly.

Kassar doesn't claim all the credit for the Video Computer System's successful blitz. He is quick to point out that he was given an "extraordinary product." It's also true that Atari faced no serious competition. RCA and Fairchild had quit the video-game business early, and in 1980, after the market heated up, Bally bailed out. That left only Magnavox, which never attacked the market with gusto even though it had been the earliest entrant. Plagued by technological glitches, production snafus, and management upheavals, Mattel was not able to introduce its Intellivision until late 1979. All 200,000 that the company could make last year were sold, giving Mattel about 10% of the market, compared with Atari's 80%. This year Mattel hopes to double or triple its market share, but Raymond Wagner, president of the toy division, says that "we will certainly not catch up to Atari."

As Kassar was struggling with the home-games division, Atari's coin-operated games began to score big in the arcades. In 1980 Atari countered Bally's Space Invaders with Asteroids, which proved almost as powerful a magnet for the young. By the end of last year 70,000 had been shipped. Atari's revenues from coin-operated games soared from $52 million in 1979 to about $170 million last year. Now, even as Warner's movie division is bringing you *Superman II*, Atari is introducing Asteroids Deluxe.

The obvious question about Atari's smashing success is: How long will it last? Video games might just be the latest toy-industry fad. In the meantime, the profitability of video games is attracting plenty of new competitors. In the past two years, at least half a dozen companies have started making coin-operated video games. Japanese companies, which have invented some of the most successful games, have established manufacturing facilities in the U.S.

Atari has internal problems too. The entrepreneurial craziness that was one of its prime assets is gone, and the company has been slow to develop new game systems. The biggest new thrust is into personal computers, an already crowded field where Atari is one of the few companies aiming its product at the home market. (See "The Coming Struggle in Personal Computers," FORTUNE, June 29.) Analysts estimate that Atari's computer division lost about $10 million last year on $20 million of sales.

Critics say that the company's foray into personal computers has diverted management time and resources from video games. One complaint is that Atari has not developed a more sophisticated version of the Video Computer System for customers who want to trade up. Atari's only response has been a remote-control model that costs an extra $100. Says a buyer for one of the country's leading retailers: "They've greased the way for Mattel."

Here comes Pac-Man

Still, the glory days for Atari may just be dawning. At the end of 1980, only 3.5% of American households had a video-game player. This year the proportion should rise to 8%, and Gerard says, "We're trying to figure out how to push it up to 50%." Foreign markets, which Atari just began to penetrate last year, could prove even more rewarding.

Though Atari has not been flooding the market with new products, it has been spending heavily on research. The company is mum about what's on the drawing boards, but one possibility is adding a voice track to home video games to augment the present beeps, hums, and explosions. Among the games themselves, Atari is sure to have some more big winners. A home version of Asteroids will have twice the computer memory of other cartridges, and this is bound to make the game more challenging. Atari has lined up the home-market licenses for Pac-Man and Galaxian, two highly successful coin-operated games.

The enthusiasm of all those millions of people locked in video combat in arcades and homes certainly shows no sign of waning. Part of the appeal of video games is that they involve skill. You strive to run up ever higher scores before you are defeated, your cities destroyed, or your spaceship atomized. The average game is over in three minutes, but the longest Asteroids game on record—played on June 13 and 14 by David Jannise, 19, at Rainbow Roller Rink in Beaumont, Texas—lasted for 36 hours and 29 minutes. ■